

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-026680**Date Inspected:** 09-Nov-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	Bernie Docena and John Pagliero			<b>CWI Present:</b>	Yes	No
<b>Inspected CWI report:</b>	Yes	No	N/A	<b>Rod Oven in Use:</b>	Yes	No N/A
<b>Electrode to specification:</b>	Yes	No	N/A	<b>Weld Procedures Followed:</b>	Yes	No N/A
<b>Qualified Welders:</b>	Yes	No	N/A	<b>Verified Joint Fit-up:</b>	Yes	No N/A
<b>Approved Drawings:</b>	Yes	No	N/A	<b>Approved WPS:</b>	Yes	No N/A
				<b>Delayed / Cancelled:</b>	Yes	No N/A
<b>Bridge No:</b>	34-0006			<b>Component:</b>	SAS OBG	

**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At OBG 13E/14E bottom plate 'D1'(Y=6000mm to Y=9300mm) inside, QA randomly observed ABF certified welder James Zhen ID #6001 perform 1G (flat position) Submerged Arc Welding (SAW) welding root pass to fill pass on the unequal plate thickness (35mm/30mm) Complete Joint Penetration (CJP) splice butt joint. The welder was utilizing F7A6-EM12K-H8, 3.2mm electrode with corresponding Esab OK Flux 10.62 flux and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1. The Seismic Performance Critical Member (SPCM) joint being welded has a single V-groove butt joint with backing bar that will be removed then back welded. The plates were preheated to more than 200 degree Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of the plate prior/during welding. Welding parameters were monitored by ABF/QC Bernie Docena. QA noted the welding parameters, the workmanship and appearance of the completed fill pass deemed satisfactory. At the end of the shift, fill pass welding was still continuing and should remain tomorrow.

At OBG 12E/13E LS4 longitudinal stiffener inside, QA randomly observed ABF welder Fred Kaddu ID #2188 perform 3G (vertical) Shielded Metal Arc Welding (SMAW) back welding fill pass on a Complete Joint Penetration (CJP) stiffener splice butt joint. The stiffener plates being welded are made of high strength plate material HPS 485W and has a thickness of 35mm. The joint has a double V joint preparation that was welded from one side and after the completion from one, back gouged and performed the Non Destructive Testing (NDT) tested

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using Magnetic Particle Testing (MT). The fit up was inspected by ABF QC John Pagliero but since there was an excessive mismatch of 6mm maximum, a Request for Information (RFI) ABF-RFI-002616R00 was generated by ABF and eventually approved by Caltrans. The welder was noted using E9018H4R with 1/8" diameter electrode implementing Caltrans approved welding procedure specification (WPS) ABF-WPS-D1.5-1012-3. The splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blanket located at the opposite side of the plate prior/during welding. The QA Inspector noted the ABF QC John Pagliero was on site monitoring the in process preheats and welding parameters. During the shift, QA noted ABF QC was closely monitoring the issuance of E9018H4R electrodes due to its limited exposure time allowed. During the shift at around 1400 hours, cover pass welding was completed and the welder has held the 200°F for three more hours after welding as required.

Prior to the welding completion of the longitudinal stiffener mentioned above, lost of preheat was noted on the Miller Proheat 35 Induction Heating System machine. At around 1250 hours, this QA went to the job location and noted the machine was just reading 140°F. Since QC was not around during that time, the lost of preheat on the plates was conveyed to the welder who immediately checked the machine and noted it was accidentally turned off. The welder immediately put back the machine into operation and few minutes later the preheat was already backed to more than 200°F.

This incident was relayed to Lead QA Danny Reyes and also ABF QC John Pagliero who was the assigned QC. He then informed this QA that since the lost of preheat during welding was in violation to the contract requirements, he will inform his Supervisor Bonifacio Daquinag for him to issue a Non-Conformance Report (NCR) due to this incident. This QA was also able to talk to QC Supervisor and he concurred that QC John Pagliero needs to issue an NCR for the above incident.

At OBG 13E/14E side plate 'H' inside, QA randomly observed ABF/JV qualified welder Wai Kitlai perform root pass to cover pass welding on the Complete Joint Penetration (CJP) splice butt joint. The welder was observed manually welding in the 3G (vertical) position utilizing a Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3042B-1. The 30/25mm unequal thickness joint being welded has a single V-groove butt joint with backing bar that will be removed and back gouged then back welded. During welding, ABF Quality Control (QC) Bernie Docena was noted monitoring the welding parameters of the welder. Measured parameters during welding were 235 amperes, 23.3 volts which deemed in compliance to the contract requirements. During the shift, cover pass FCAW-G welding was completed and the welder has moved to plate 'I', ground and made ready the joint and adjacent metal surface for tomorrow.

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## Summary of Conversations:

Due to the heat lost during welding of the longitudinal stiffener at 12E/13E LS-4, ABF QC has decided to issue a Non-Conformance Report to ABF. This QA has also issued an Incident Report concerning the lost of heat on the stiffener just mentioned.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

**Reviewed By:** Levell, Bill

QA Reviewer

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